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SUMMER BIRDS OF THE PINE BARRENS OF NEW JERSEY.

BY WITMER STONE.

THE Pine Barrens of New Jersey have long been renowned as a botanical collecting ground, and the botanists of Philadelphia and vicinity take many excursions every year into this region, which is so easy of access and which presents a flora so absolutely different from that of eastern Pennsylvania that nearly every species is a 'rarity' to one familiar only with the plants of the latter section.

Although the birds of the Pine Barren region are quite as interesting as its flora, ornithologists have been slow to penetrate its deep swamps and to explore its sandy wastes, and slower still to make known the results of their explorations.

It seems strange that Wilson and Audubon should not have visited this region, but so far as we can judge they only explored one or two points near the coast, and did not then make a very thorough investigation, or they would certainly have had something to say of the abundance of such species as the Parula, Hooded and Prairie Warblers and the Tree Swallow, which are almost unknown in summer in eastern Pennsylvania. Even Cassin and Turnbull seem to have been unfamiliar with the fauna of the Pine Barrens, to judge from the few scattered statements regarding some of the above species which they have made.

The Pine Barrens occupy the whole of southern New Jersey south of a line from Long Branch to Salem, excepting the maritime marshes and a narrow strip bordering the Delaware River. They consist of a low, flat stretch of sandy ground, some parts forming dreary wastes of loose sand, with a scattering growth of scrub pines and oaks (*Quercus nigra* and *Q. ilicifolia*), and in others covered with continuous pine woods of the taller pitch pine (*Pinus rigida*). Scattered throughout the region, especially along the sluggish streams, are almost impenetrable swamps of white cedar (*Chamæcypris thyoides*) bordered by thickets of holly and various ericaceous bushes, and numerous open sphagnum and cranberry bogs.

Portions of this region, especially in Atlantic County, are still quite wild and comparatively uninhabited. Deer (*Cariacus virginianus*) are shot here every winter, and along the upper Egg Harbor River a few bears (*Ursus americanus*) in all probability still exist.

The Pine Barrens lie entirely within the Carolinian Fauna and are, generally speaking, much richer in southern types than the southeastern portion of Pennsylvania. Many species of insects and plants are found there which do not occur farther north in the State, nor to the west of the Delaware River. A number of Carolinian birds also occur abundantly, but some other species quite as characteristic of this fauna, and which are found regularly in southeastern Pennsylvania, are conspicuous by their absence. This is undoubtedly due to the peculiar environment, which is not suited to their habits.

The occurrence of such a boreal type of mammal as the Red-backed Mouse (*Evotomys*) in the Pine Barrens is probably accounted for by the fact that it here inhabits the cool sphagnum bogs and is chiefly nocturnal, so that the environment during the time of its activity would be quite congenial.

No northern species of birds have yet been found breeding in the Pine Barrens, unless the Redstart be so considered, for although it occurs sparingly in other parts of the Carolinian belt, it is much more characteristic of the Alleghanian fauna.

Of the birds which characterize the dry scrub barrens the Towhee, Ovenbird and Prairie Warbler are the most conspicuous. The latter species is especially numerous, and its song is heard continually as it flits about among the low pines and scrub oaks. Wherever the tall pines occur the Pine Warbler abounds, frequenting the topmost branches, among the bunches of cones or clinging to the trunk in the manner of a Creeper. In the thickets bordering the cedar swamps are heard the notes of the Carolina Chickadee and White-eyed Vireo, but the most interesting bird of these localities is the Parula Warbler. Everywhere throughout the swamps the bushes are covered with great masses and festoons of the delicate gray lichen or 'beard-moss' (*Usnea barbata*), and where this grows thickest the Parulas abound. They nest exclusively in the bunches of lichens; selecting some convenient bunch they loop and weave together the

hanging portions so as to form a receptacle for their eggs. Sometimes the nest occupies the very center of a large mass of the lichen, and so little do these bunches of lichen differ from those which have not been made to do service as nests that it is often quite impossible to distinguish between them. In the swamps bordering the small lakes near Dennisville, Cape May County, these little Warblers are especially abundant.

In Atlantic County, above May's Landing, the damming of the Egg Harbor River, which was accomplished many years ago, has resulted in the flooding of several large cedar swamps through which the river formerly flowed, so that now the surface of the stream, nearly a quarter of a mile in width, is covered with the bare and bleached trunks of the cedars and other trees, which appear like a dense forest of telegraph poles.

These rotten trunks have not been overlooked by the birds, and several species here find congenial nesting sites; but although they would seem to be safer from molestation here than on the land, one would think that it must fare badly with the young in their first attempts at flying. The Flickers were probably the first settlers, so to speak, of this aquatic colony, and they still nest in the larger trunks, the bottoms of their nests being in many cases but a few inches above the surface of the water.

In the old Flickers' nests, or inside the fragile bark shells of the stumps most advanced in decay, the Carolina Chickadees and Tree Swallows form their nests. In addition to these birds a few Kingbirds and Robins occupy the stumps of such trees as were formerly used by the Flickers, and which have broken off so as to leave the bottoms of the old excavations as convenient receptacles for the structures of the succeeding tenants.

A list of the species known to summer in the Pine Barrens follows. This is based mainly upon my own experience, but I am also indebted for many interesting notes to various members of the Delaware Valley Ornithological Club, especially to Messrs. S. N. Rhoads, J. H. Reed, C. A. Voelker, M. L. C. Wilde, and I. N. DeHaven.

1. *Aix sponsa*. WOOD DUCK.—Frequent along the Egg Harbor and other rivers.

2. *Ardea herodias*. GREAT BLUE HERON.—Seen throughout the year, and doubtless some heronries are to be found in the dense cedar swamps, although I have never seen any nests.

3. *Ardea virescens*. GREEN HERON.—Abundant.
4. *Nycticorax nycticorax nævius*. NIGHT HERON.—Frequent, though I have never seen any heronries in the Barrens.
5. *Rallus elegans*. KING RAIL.—A nest of this species was found July 15, 1892, by Dr. J. B. Brinton, in a cedar swamp near Repaupo, which lies on the outskirts of the district. The species may also breed farther inland.
6. *Philohela minor*. WOODCOCK.—Tolerably common.
7. *Actitis macularia*. SPOTTED SANDPIPER.—Tolerably common.
8. *Colinus virginianus*. BOB-WHITE.—Common, especially in Cape May County. The present birds are largely from introduced stock.
9. *Bonasa umbellus*. RUFFED GROUSE.—Tolerably common in the wilder parts of Atlantic County.
10. *Zenaidura macroura*. MOURNING DOVE.—Tolerably common.
11. *Cathartes aura*. TURKEY VULTURE.—Common throughout the Pine Barrens, and is to be seen during the entire year, though less common in winter.
12. *Circus hudsonius*. MARSH HAWK.—Not very common, but may breed occasionally, as a nest was taken on Long Beach by Mr. W. E. D. Scott (Bull. Nutt. Orn. Club, 1879, p. 222).
13. *Accipiter velox*. SHARP-SHINNED HAWK.—Rather common.
14. *Accipiter cooperi*. COOPER'S HAWK.—Tolerably common.
15. *Buteo borealis*. RED-TAILED HAWK.—Tolerably common.
16. *Buteo latissimus*. BROAD-WINGED HAWK.—Tolerably common. I have no actual record of the breeding of these four Hawks in the Pine Barren district, but individuals are seen during the summer and they doubtless all nest in the pine forests.
17. *Haliaeetus leucocephalus*. BALD EAGLE.—A few pairs are seen all the year along the coast and doubtless breed in the cedar swamps. A pair was observed daily near Dennisville, Cape May County, in May, 1891, and was reported to have a nest in the vicinity.
18. *Falco sparverius*. SPARROW HAWK.—Common.
19. *Pandion haliaetus carolinensis*. OSPREY.—Common, breeding along the edge of the Pine Barrens towards the salt marshes.
20. *Asio accipitrinus*. SHORT-EARED OWL.—Rare. Breeds on the marshes at Long Beach (Scott, Bull. Nutt. Orn. Club, 1879, p. 202), and perhaps in the Pine Barren swamps.
21. *Megascops asio*. SCREECH OWL.—Common.
22. *Bubo virginianus*. GREAT-HORNED OWL.—Not common but pretty generally distributed through the pine woods.
23. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—Not common.
24. *Ceryle alcyon*. KINGFISHER.—Along the larger streams and small lakes.
25. *Dryobates villosus*. HAIRY WOODPECKER. Common.

26. *Dryobates pubescens*.¹ DOWNTY WOODPECKER. This species and the preceding occur in about equal numbers.

27. *Ceophloeus pileatus*. PILEATED WOODPECKER.—Two specimens of this bird were secured by Dr. W. L. Abbott in Cape May County (No. 26675, Nov. 7, 1878, and No. 26676, Dec. 31, 1879, Coll. Acad. Nat. Sci. Phila.). Although both were secured in winter, the species is generally resident where found, and the birds may have bred in the Barrens. None have been taken since, so far as I am aware.

28. *Colaptes auratus*. FLICKER.—Abundant.

29. *Antrostomus vociferus*. WHIP-POOR-WILL.—Common in the dense swamps of Cape May County, and probably in other parts of the Pine Barren region, emerging at dusk into the open ground, especially about old deserted farms.

30. *Chordeiles virginianus*. NIGHT HAWK.—Common in dry, sandy situations, but rather local in its distribution.

31. *Chaetura peligra*. CHIMNEY SWIFT.—Abundant, mainly in the vicinity of dwellings.

32. *Trochilus columbris*. HUMMINGBIRD.—Very common in Cape May County, much more so than in eastern Pennsylvania.

33. *Tyrannus tyrannus*. KINGBIRD.—Very common throughout the open scrub barrens.

34. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Common along the edges of the cedar swamps.

35. *Sayornis phoebe*. PHOEBE.—Tolerably common.

36. *Contopus virens*. WOOD PEWEE.—Common in the cedar swamps.

37. *Empidonax acadicus*. ACADIAN FLYCATCHER.—Messrs. J. H. Reed and M. L. C. Wilde took nests of this species in Cape May and Cumberland Counties in 1893, but it is not a commonly distributed species in the region.

38. *Cyanocitta cristata*. BLUE JAY.—Common.

39. *Corvus corax principalis*. RAVEN.—Several pairs of Ravens at least still breed in the cedar swamps of southern New Jersey. All the year the birds visit the sea coast from Atlantic City to Cape May and are frequently observed. One pair has bred for a number of years near Tuckerton as I have been informed by Mr. G. B. Benners, and Mr. S. N. Rhoads has heard the same thing from the Jillson Bros. of Tuckerton who have visited nests in this vicinity. Another pair of Ravens was observed daily by Mr. S. N. Rhoads and myself near May's Landing during February, 1893, and we were informed that they nested every year in a cedar swamp just above that locality. As the relationship of the Ravens

¹ Audubon gives *Dryobates borealis* as occurring in New Jersey, and Mr. Ridgway includes this State in the range of the species without any further evidence. We have been unable, however, to find any records of the capture of this species anywhere in either Pennsylvania or New Jersey, except one specimen supposed to have been taken near New York City (Lawrence, Ann. Lyceum Nat. Hist., VIII, p. 291).

of the eastern United States is a question of general interest I have given the measurements of two New Jersey specimens in the collection of the Philadelphia Academy as well as those of typical examples of *C. c. principalis* and *C. c. sinuatus* from the same collection. On the whole I think the New Jersey birds come nearer to the former race, as does also a specimen from Ft. Riley, Kansas, which is included in the list below.

Corvus corax principalis.

		Culmen to extr. Base.	Depth of Bill through Nostril.	Wing.	Tarsus.
30143	McCormick Bay, Greenland.	3.08 in.	1.10	17.75	2.45
30195	" " "	2.67	1.07	17.50	2.38
3295	New Jersey.	2.62	1.05	17.10	2.50
3314	" "	2.90	1.09	17.25	2.50
2817	Ft. Riley, Kansas.	2.88	1.08	18.10	2.52

Corvus corax sinuatus.

2815	California.	2.45	1.00	17.00	2.50
2820	"	2.50	.92	15.50	2.32
27620	Oracle, Arizona.	2.60	1.00	16.25	2.33

40. *Corvus americanus*. CROW.—Common.

41. *Corvus ossifragus*. FISH CROW.—While this species occasionally visits the Pine Barrens and may possibly breed on its borders it is generally confined to the immediate vicinity of the sea coast, nesting in the isolated clumps of pines which occur here and there on sandy 'islets' in the salt meadows.

42. *Molothrus ater*. COWBIRD.—Not common. Have taken its egg in one instance in the delicate nest of the Parula Warbler, but how it was deposited is somewhat of a mystery, as the opening seemed entirely too small to admit the intruder.

43. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—Very common along the Egg Harbor River and other large streams as well as on the partly brackish swamps bordering the eastern side of the Pine Barrens.

44. *Sturnella magna*. MEADOW LARK.—Rare, and confined to the open cultivated districts and to the salt meadows to the east.

45. *Icterus spurius*.¹ ORCHARD ORIOLE.—Tolerably common.

46. *Quiscalus quiscula*. PURPLE GRACKLE.—Not common except in the vicinity of towns.

¹The Baltimore Oriole seems to be quite rare in this region, and I do not recollect ever seeing one in summer.

47. *Spinus tristis*. GOLDFINCH.—Tolerably common.
48. *Pooecetes gramineus*. VESPER SPARROW.—Common in open cultivated ground.
49. *Ammodramus savannarum passerinus*. YELLOW-WINGED SPARROW.—Occasional in open ground.
50. *Ammodramus henslowi*. HENSLOW'S SPARROW.—This species was taken August 16, 1886, by my friend Mr. A. P. Brown near Point Pleasant, N. J., in a swamp bordering the Pine Barrens, and was evidently breeding there. Others were seen in the same place in subsequent years.
51. *Ammodramus caudacutus*. SHARP-TAILED SPARROW.
52. *Ammodramus maritimus*. SEA-SIDE SPARROW.—These two salt marsh species follow the borders of some of the rivers and streams within the edge of the Pine Barrens but do not occur in the region proper.
53. *Spizella socialis*. CHIPPING SPARROW.—Common, mostly about dwellings.
54. *Spizella pusilla*. FIELD SPARROW.—Common throughout the low scrub barrens.
55. *Melospiza fasciata*. SONG SPARROW.—Abundant.
56. *Pipilo erythrophthalmus*. CHEWINK.—Very common throughout the scrub barrens and on the edges of the swamps.
57. *Cardinalis cardinalis*. CARDINAL.—Not very common.
58. *Passerina cyanea*. INDIGO BIRD.—Not common.
59. *Progne subis*. PURPLE MARTIN.—Common, mainly along the large streams, nesting about buildings and in boxes.
60. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Messrs. Reed and Wilde secured some nests of this species in Cape May County, but it is not generally distributed.
61. *Chelidon erythrogaster*. BARN SWALLOW.—Very common.
62. *Tachycineta bicolor*. TREE SWALLOW.—Abundant throughout the Pine Barrens, especially along the large streams.
63. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—Rather common in localities suited to its habits. Although the Bank Swallow may breed in the region, all the colonies which I have examined proved to be of this species.
64. *Ampelis cedrorum*. CEDAR BIRD.—Not very common during the breeding season, but some undoubtedly remain.
65. *Lanius ludovicianus*. LOGGERHEAD SHRIKE.—I have observed a few of these birds every summer for several years in the vicinity of Cape May and have no doubt that they breed there.
66. *Vireo olivaceus*. RED-EYED VIREO.—Common.
67. *Vireo noveboracensis*. WHITE-EYED VIREO.—Very common in the swamps where it is one of the most characteristic species.
68. *Mniotilla varia*. BLACK-AND-WHITE WARBLER.—Common throughout the Pine Barrens.
69. *Compsothlypis americana*. PARULA WARBLER.—Very common in swampy locations wherever the *Usnea* is to be found.

70. *Dendroica aestiva*. **YELLOW WARBLER**.—Rather common in many localities, mostly along the large streams.

71. *Dendroica vigorsii*. **PINE WARBLER**.—Very common wherever the taller pines are to be found.

72. *Dendroica discolor*. **PRairie WARBLER**.—Very common throughout the low scrub barrens.

73. *Seiurus aurocapillus*. **OVEN-BIRD**.—Common.

74. *Geothlypis trichas*. **MARYLAND YELLOW-THROAT**.—Very common.

75. *Icteria virens*. **YELLOW-BREASTED CHAT**.—Not common.

76. *Sylvania mitrata*. **HOODED WARBLER**.—In all the dark cedar swamps this species is to be found, and its note is one of the most familiar sounds. In Cape May County it is especially abundant.

77. *Setophaga ruticilla*. **REDSTART**.—Messrs. Reed and Wilde secured nests of this species in Cape May County, but it is not generally distributed.

78. *Mimus polyglottos*. **MOCKINGBIRD**.—I secured a specimen of this bird at Cape May Point, August 27, 1891, which was still in the worn breeding plumage, so that it seems probable that it nested in the vicinity. The species is reported to still breed near Tuckerton occasionally, but I have been unable to get any definite information on the subject. It is certainly very rare in New Jersey.

79. *Galeoscoptes carolinensis*. **CATBIRD**.—Common.

80. *Harporhynchus rufus*. **BROWN THRASHER**.—Common.

81. *Thryothorus ludovicianus*. **CAROLINA WREN**.—Rather common.

82. *Troglodytes aëdon*. **HOUSE WREN**.—Not very common; only seen about houses.

83. *Cistothorus palustris*. **LONG-BILLED MARSH WREN**.—This species, which is mostly restricted to tide water swamps, follows the course of the larger streams for some distance back into the Pine Barrens, and I have found it breeding a mile above May's Landing in a swamp which borders the dam on the Egg Harbor River at this point.

84. *Sitta carolinensis*. **WHITE-BELLIED NUTHATCH**.—Tolerably common.

85. *Parus bicolor*. **TUFTED TITMOUSE**.—Not very common.

86. *Parus carolinensis*. **CAROLINA CHICKADEE**.—Very common throughout the Pine Barrens.

87. *Polioptila caerulea*. **BLUE-GRAY GNATCATCHER**.—Mr. W. L. Baily has taken the nest of this species at Bridgeton, and Messrs. I. N. DeHaven and C. A. Voelker have obtained specimens respectively at Atlantic City and Dennisville during spring. It is, however, of decidedly rare occurrence.

88. *Turdus mustelinus*. **WOOD THRUSH**.—Not common, and confined to the dense cedar swamps.

89. *Merula migratoria*. **ROBIN**.—Common.

90. *Sialia sialis*. **BLUEBIRD**.—Tolerably common.